

ENT COOPERATION TREATY
PCT
 INTERNATIONAL PRELIMINARY EXAMINATION REPORT
 (PCT Article 36 and Rule 70)

Applicant's or agent's file reference E787WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. PCT/NZ 99/00018	International filing date (day/month/year) 9 February 1999	Priority Date (day/month/year) 13 February 1999
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁶ E04D 3/362		
Applicant METRO SHINGLES (INTL) LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 9 sheet(s).

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 12 August 1999	Date of completion of the report 24 January 2000
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	
Authorized Officer <i>D. Melhuish</i> DAVID MELHUISH Telephone No. (02) 6283 2426	

I. Basis of the report

1. With regard to the elements of the international application:*

 the international application as originally filed. the description, pages , as originally filed,
pages , filed with the demand,
pages 1 to 6, filed with the letter of 30 September 1999. the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages 7 to 9, filed with the letter of 30 September 1999. the drawings, pages 1/2 to 2/2, as originally filed,
pages , filed with the demand,
pages , filed with the letter of the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

 the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:

 contained in the international application in written form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished4. The amendments have resulted in the cancellation of: the description, pages the claims, Nos. the drawings, sheets/fig.5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims 1 to 9	YES
	Claims	NO
Inventive step (IS)	Claims 1 to 3, 5 to 7, 9	YES
	Claims 4, 8	NO
Industrial applicability (IA)	Claims 1 to 9	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

INVENTIVE STEP (IS) Claims 4 and 8:

D1 - US 5657603 A
 D2 - US 5305570 A

D1 discloses all the features of claims 4 and 8 except for side portions of the sheathing elements overlapping without engagement. The sides of the sheathing elements of D1 interlock to improve weatherproofing of the elements. Another well known way this can be achieved is through the use of weathering ribs and indentations in the surface of the element, such as shown in D2 at either end of figure 5. I consider that it would be obvious to a person skilled in the art that the folded edges of D1 are very labour-intensive and that the use of a different method of weatherproofing would be greatly labour-change, the sides of the sheathing elements would overlap without engagement and thus define all the features of claims 4 and 8. Therefore claims 4 and 8 do not involve an inventive step.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/NZ 99/00018

VIII. Certain observations on the international application.

following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. Claims 4 and 8 lack clarity due to inconsistent terminology. It would be clearer if "groove" at page 8 lines 15, 17 and 20 and page 9 lines 9, 11 and 15 were replaced by "channel".
2. Claim 9 lacks clarity as there is no antecedent for "the tab free side section" (line 3) in claim 4.

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION
(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
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in its capacity as elected Office

Date of mailing (day/month/year) 26 August 1999 (26.08.99)
International application No. PCT/NZ99/00018
International filing date (day/month/year) 09 February 1999 (09.02.99)
Applicant ROSS, James, Cameron

Applicant's or agent's file reference
RN/E787NZ

Priority date (day/month/year)
13 February 1998 (13.02.98)

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

12 August 1999 (12.08.99)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer S. Mafia
Faxsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

M 09/529059

PCT/INTERNATIONAL COOPERATION TREATY

5610

CORRECTED VERSION

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 15 MAR 2000

Applicant's or agent's file reference E787WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. PCT/NZ 99/00018	International filing date (day/month/year) 9 February 1999	Priority Date (day/month/year) 13 February 1998
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁶ E04D 3/362		
Applicant METRO SHINGLES (INTL) LIMITED et al.		TC 3600 MAIL ROOM RECEIVED JUL 21 2000

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**CORRECTED
VERSION**

Date of submission of the demand 12 August 1999	Date of completion of the report 22 February 2000
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer <i>D. Melhuish</i> DAVID MELHUISH Telephone No. (02) 6283 2426

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V.	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims 1 to 9	YES
		Claims	NO
	Inventive step (IS)	Claims 1 to 3, 5 to 7, 9	YES
		Claims 4, 8	NO
	Industrial applicability (IA)	Claims 1 to 9	YES
		Claims	NO
2.	Citations and explanations (Rule 70.7)		

INVENTIVE STEP (IS) Claims 4 and 8:

D1 - US 5657603 A

D2 - US 5305570 A

D1 discloses all the features of claims 4 and 8 except for side portions of the sheathing elements overlapping without engagement. The sides of the sheathing elements of D1 interlock to improve weatherproofing of the elements. Another well known way this can be achieved is through the use of weathering ribs and indentations in the surface of the element, such as shown in D2 at either end of figure 5. I consider that it would be obvious to a person skilled in the art that the folded edges of D1 are very labour-intensive and that the use of a different method of weatherproofing would be greatly labour-saving. It is therefore considered non-inventive to replace the folded tabs of D1 with standard weathering ribs. With such a change, the sides of the sheathing elements would overlap without engagement and thus define all the features of claims 4 and 8. Therefore claims 4 and 8 do not involve an inventive step.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. Claims 4 and 8 lack clarity due to inconsistent terminology. It would be clearer if "groove" at page 8 lines 15, 17 and 20 and page 9 lines 9, 11 and 15 were replaced by "channel".
2. Claim 9 lacks clarity as there is no antecedent for "the tab free side section" (line 3) in claim 4.



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : E04D 3/362		A1	(11) International Publication Number: WO 99/41471
			(43) International Publication Date: 19 August 1999 (19.08.99)
(21) International Application Number: PCT/NZ99/00018		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 9 February 1999 (09.02.99)			
(30) Priority Data: 329756 13 February 1998 (13.02.98) NZ 330021 23 March 1998 (23.03.98) NZ			
(71) Applicant (for all designated States except US): METRO SHINGLES (Intl) Limited [NZ/NZ]; 7 The Furlong, Takapuna, Auckland 1702 (NZ).			
(72) Inventor; and		Published	
(75) Inventor/Applicant (for US only): ROSS, James, Cameron [NZ/NZ]; 416 North Road, Clevendon, Auckland 1750 (NZ).		With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	
(74) Agent: NEWNHAM, Ross, Andrew; Newnham & Co., 12th floor, 148 Quay Street, Auckland 1001 (NZ).			
(54) Title: IMPROVEMENTS IN AND RELATING TO ROOFING OR SHEATHING			
(57) Abstract			
<p>A sheet metal exterior sheathing element particularly suitable as a roofing tile. The tile has inter-engageable channels on its opposing longitudinal sides, one channel (6, 7) being on the underside and the channel (9) on the underside of the tile. A mounting tab (10) extends from adjacent the underside channel (9) substantially co-planar to the body of the tile. The channels enable two tiles (1a, 1b) to be joined in an overlapping side by side relationship with their corresponding channel sections engaged. Each tile (1a, 1b) can be fixed to a supporting structure by their mounting tabs (10). A third tile (1c) can then be joined longitudinally of the first two tiles (1a, 1b) by engaging its underside channel (6) over and about their joined underside channel sections (9). It can also be fixed to the supporting structure and the steps repeated to sheath a desired area.</p>			

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TITLE.

IMPROVEMENTS IN AND RELATING TO ROOFING OR SHEATHING.

TECHNICAL FIELD OF THE INVENTION.

5 This invention relates to an exterior sheathing element and a method of applying exterior sheathing to a structure. More particularly the invention relates to a sheet metal sheathing element useful for roofing.

BACKGROUND ART OF THE INVENTION.

A variety of exterior sheathing elements including those formed from sheet metal are known.

10 Traditionally with exterior sheathing, particularly roofing, the word "tile" is used to indicate a single tile such as a concrete tile. With the development of sheet metal sheathing it has become well established to manufacture elements that visually replicate the designs of such traditional tiles. Because these sheet metal tiles are substantially lighter than their concrete counterparts they are normally manufactured as multiple units, that is, as to replicate say three or four

15 traditional tiles. This capability is one of the advantages these tile have over the traditional "single" tile. This invention is primarily concerned with a multiple sheet metal tile and herein the term "tile" is used accordingly. However, the nature of the invention does lend itself for manufacture and use as a single tile element and the term is to be considered as being applicable to either form of tile.

20 A first object of this invention is to provide a sheet metal sheathing element particularly useful as a roofing tile that can be manufactured utilising thinner sheet metal than typically used with sheet metal tiles. A second object is to provide a sheet metal tile that replicates a traditional wooden shingle "tile" particularly in a multiple configuration thereof as discussed above relative to concrete tiles. A further object of this invention is to provide such a sheathing element

25 adapted for individual fixing to a supporting structure and subsequent conjoining and fixing of further tiles both laterally and longitudinally of the first tile. The steps can be repeated to cover a desired area of a supporting structure and thus a further object is to provide a method of affixing sheathing tile to a structure. Yet a further object is to provide the public with a further

choice in sheathing elements in particular a sheathing element suitable for mounting by relatively unskilled people.

DISCLOSURE OF THE INVENTION

According to a first aspect of this invention there is provided an exterior sheathing element 5 having a first edge portion forming a channel on what, in situ, will be an innerface of the element, and having a second and opposite edge portion forming a channel on what, in situ, will be an outerface of the element with a mounting tab projecting clear of the second edge portion in a substantially co-planar relationship to a main body of the element, the structure enabling a side of a first sheathing element to be overlapped with a side of a second element with their 10 corresponding folded edge portions engaged, and a first folded edge portion of a third sheathing element to be engaged over and about the second folded edge portion of at least one of the first and second sheathing elements.

According to a second aspect of this invention there is provided an exterior sheathing element having a first edge portion forming a channel on what, in situ, will be an innerface of the 15 element, and having a second and opposite edge portion forming a channel on what, in situ, will be an outerface of the element, with a part of that second edge portion, being a part set-back from at least one side of the tile, having a mounting tab projecting clear of the second edge portion in a substantially co-planar relationship to a main body of the element, the structure enabling a mounting tab free part at one side of a first sheathing element to be overlapped with 20 a side of a second element with their corresponding folded edge portions engaged, and a first folded edge portion of a third sheathing element to be engaged over and about the second folded edge portion of at least one of the first and second sheathing elements.

According to a third aspect of this invention there is provided a sheet metal exterior sheathing element configured to replicate at least one wooden shingle and comprising a substantially 25 planar body save for strengthening indentations including adjacent one side a series of longitudinally extending ribs, the ribs being on that side of a tile intended, in use, to be disposed on the underside when overlapped with a side of a second element to also act as weathering indentations, and having a first edge portion turned back on itself to form a channel on what, in situ, will be an innerface of the element, and having a second and opposite edge portion also

a part of that second edge portion set-back from at least one side thereof having a return fold to extend back on itself and project clear of and substantially co-planar to the body of the element to form a mounting tab, the structure enabling a first and second sheathing element disposed with their sides overlapping and their corresponding folded edge portions engaged, the first

- 5 folded edge of the lowermost tile being located within the channel of the first folded edge of the uppermost element and the mounting tab free part of the second folded edge of the uppermost element being located within the channel of the lowermost element and a first folded edge portion of a third tile to be engaged over and about the second folded edge portion of at least one of the first and second tiles.
- 10 According to a fourth aspect of this invention there is provided an exterior sheathed structure comprising a plurality of sheathing elements as defined in any one of the preceding seven aspects of this invention wherein a support therefor extends adjacently therebeneath for substantially the complete span of the sheathing.

According to fifth aspect of this invention there is provided a method of exterior sheathing a

- 15 structure with a plurality of sheathing elements as defined in any one of the first seven aspects of this invention, comprising substantially of repeating the steps of positioning a first sheathing element on a sheathing element support of the structure, positioning a second sheathing element with a side thereof in an overlap relationship with a side of the first element and in so doing ensuring their corresponding folded edge portions engaged one within the other; and
- 20 positioning a first folded edge portion of a third sheathing element in engagement over and about the second folded edge portions of the first and second sheathing elements as to extend over the overlap join therebetween, and throughout utilising mounting means with the mounting tabs to affix the sheathing elements to the support.

DESCRIPTION OF DRAWINGS.

- 25 Fig. 1 is an upperface or obverse view of two sheathing elements being presented to one another in readiness for being laterally overlapped and engaged with one another as depicted in Figure 2, and

Fig. 3 depicts a third sheathing element adjacent the two laterally overlapped elements depicted in Figure 2, the third element being presented to be joined to the first two elements in a position depicted schematically by broken-line 3, and

Fig. 4 is a partly schematic side view essentially in the direction of arrow A on Figure 3 and with the elements engaged with one another and mounted in situ onto a support extending adjacently therebeneath for substantially the complete span of the sheathing and

Fig. 5 is a similar view to Figure 4 depicting a variation of the sheathing element mounted to support rafters disposed in a spaced apart manner beneath the sheathing.

10 DETAILED DESCRIPTION OF THE INVENTION.

A sheathing element 1 is preferably manufactured from sheet metal in known manner such as by pressing, roll forming and/or folding. Preferably element 1 is designed as a multiple tile as discussed above and in particular to replicate a plurality of wooden shingles arranged in a side overlapping side relationship as in situ. While the tile of this invention can be manufactured from sheet metal as typically used for sheet metal sheathing tiles; the design lends itself suitable for manufacture using thinner sheet metal. This in turn enables the tile to economically replicate wooden shingles. Preferably sheet metal in the region of 0.27mm gauge is used, in situ, this necessitating a support extending completely therebeneath. Typically such a support is, as depicted in Figure 4, plywood or similar sheets 2 being mounted on rafters 16 or similar elements to completely cover an area. Because of their lightweight, their design and their preferred utilisation with such a support the tile of this invention is suitable for mounting by relatively unskilled people.

Preferably sheathing element 1 is pressed into a thin or substantially single plane configuration having an overall thickness, including inter-engaging channels 7 and 9 as described below, similar to that of a typical wooden shingle. Indentations indicated by various longitudinally extending lines on the drawings are preferably provided to strengthen the tile 1 and provide the desired visual wooden shingle replication. These indentations are not pronounced and in the

preferred form the tile 1 has the exterior face thereof coated, in known manner, with stone chips or similar (not shown for the sake of clarity) to enhance this replication.

The indentations include weather ingress inhibiting ribs 5, preferably longitudinally extending in a corrugated manner and preferably being more pronounced than most of the remainder of the 5 indentations. The ribs 5 are disposed along at least one side zone 4 of the tile 1, being that side that in use is disposed on the underside when overlapped (as depicted by Figs. 1 and 2), with another tile 1. In the drawings both sides of a tile 1 are shown with ribs 4 but they are not necessary on that side of a tile 1 that will be uppermost in situ.

A first edge portion 6 is formed back on itself such as by folding to form a channel 7 on what, 10 in situ, will be an innerface of the tile 1. On a second and longitudinally opposite edge portion 8 a further channel 9 is formed on what, in situ, will be an outerface of the tile 1. (While the tile 1 is preferably wider than it is long the terms "side" and "longitudinal" are used in the manner chosen to assist clarity.) Channel 9 is also preferably formed by folding and a mounting tab 10 is also formed projecting from that outer edge portion 8.

15 Mounting tab 10 extends along the edge portion 8 but preferably terminates short of one side of the tile 1 to leave a mounting tab free section 11. The tab free section 11 is preferably disposed at the side of the tile opposite the ribs 5 or in other words that side of a tile 1 that will be uppermost when in a side overlapping relationship with another tile. It will be understood by those skilled in the art and the following description that mounting tab 10 may also terminate 20 short of the other side of the element and need not be continuous.

Mounting tab 10 is preferably formed by providing a return fold on the mounting tab forming part of edge 8, the mounting tab 10 extending back about channel 9 and then outwardly substantially co-planar with the body of the tile 1. The side of edge portion 8 distal of mounting tab free part 11 and the associated engaging section of edge portion 6 may be 25 stepped, as indicated at 17 on tile 1a in Figure 1, to assist the side overlap engagement, and continuity of line, of one tile with another. For similar reasons, at the area 17, channel 9 may be marginally "opened" and at the tab free part 11 marginally "closed".

The construction and arrangement of the tile 1 enables a plurality of tiles 1 to be laterally overlapped with one another as depicted in Fig. 2. Referring in particular to Fig. 1, the overlap is undertaken by presenting a first tile 1a to a second tile 1b. This is indicated by double headed arrow 13, the overlap providing their corresponding edge portions 7 and 8 are engaged within 5 one another. More particularly, the edge portion 6 of tile 1b locates within channel 7 of tile 1a and the tab free section 11 of edge portion 8 of tile 1a locates in channel 9 of tile 1b.

Referring in particular to Fig. 3 a third tile 1c can then be presented; as indicated by the double headed arrow 15, to tiles 1a and/or 1b. Preferably the presentation is as to engage the folded edge 7 of tile 1c over and about the overlapping folded edges 8 of the tiles 1a and 1b and as to 10 extent to either side of that overlap. This relationship of three such tiles 1 enhances the weathering capabilities of the junction between the tiles 1. For clarity, this engagement is depicted in side view schematically in Figs. 4 and 5, the engagement being in the nature of a close nesting or clipping together.

A preferred method of in situ mounting is to connect tiles 1 in the sequence described above. In 15 so doing the tiles are rested on backing support sheet 2 and fixed thereto such as by stapling 12 through the mounting tabs 10 into the sheet 2. These steps are substantially repeated to cover the whole of a required area. In so doing the mounting tabs 10 are hidden from view and a continuous sheathing finish achieved.

Referring in particular to Fig. 5 a variation of the sheathing element 1 is depicted. This 20 sheathing element 1d is preferably manufactured from thicker sheet metal in the region of 0.5mm gauge sheet metal. Mounting tab 10 incorporates a laterally extending channel 11 that can be used as a batten to affix the sheathing elements 1d directly to spaced apart rafters 16.

THE CLAIMS.

1. An exterior sheathing element having a first edge portion forming a channel on what, in situ, will be an innerface of the element, and having a second and opposite edge portion forming a channel on what, in situ, will be an outerface of the element with a mounting tab 5 projecting clear of the second edge portion in a substantially co-planar relationship to a main body of the element, the structure enabling a side of a first sheathing element to be overlapped with a side of a second element with their corresponding folded edge portions engaged, and a first folded edge portion of a third sheathing element to be engaged over and about the second folded edge portion of at least one of the first and second sheathing elements.
- 10 2. An exterior sheathing element as claimed in claim 1 having a substantially planar body save for strengthening indentations including, adjacent one side, a series of longitudinally extending ribs, the ribs being on that side of a tile intended, in use, to be disposed on the underside to also act as weathering indentations, when overlapped with a side of a second element.
- 15 3. An exterior sheathing element as claimed in either of claim 1 or claim 2 wherein the channels are formed by turning the edges portions of the body of the tile back on themselves and wherein the second channel has a return fold to extend back on itself and project clear of the element to form the mounting tab.
4. An exterior sheathing element having a first edge portion forming a channel on what, in 20 situ, will be an innerface of the element, and having a second and opposite edge portion forming a channel on what, in situ, will be an outerface of the element, with a part of that second edge portion, being a part set-back from at least one side of the tile, having a mounting tab projecting clear of the second edge portion in a substantially co-planar relationship to a main body of the element, the structure enabling a mounting tab free part at one side of a first 25 sheathing element to be overlapped with a side of a second element with their corresponding folded edge portions engaged, and a first folded edge portion of a third sheathing element to be engaged over and about the second folded edge portion of at least one of the first and second sheathing elements.

5. An exterior sheathing element as claimed in the preceding claim wherein the a mounting tab free part is provided at the side of the tile intended, in use, to be on the upperside when overlapped with a side of a second element
6. A sheet metal exterior sheathing element configured to replicate at least one wooden shingle and comprising a substantially planar body save for strengthening indentations including, adjacent one side, a series of longitudinally extending ribs, the ribs being on that side of a tile intended, in use, to be disposed on the underside when overlapped with a side of a second element to also act as weathering indentations, and having a first edge portion turned back on itself to form a channel on what, in situ, will be an innerface of the element, and having a second and opposite edge portion also turned back on itself to form a channel on what, in situ, will be an outerface of the element with a part of that second edge portion set-back from at least one side thereof having a return fold to extend back on itself and project clear of and substantially co-planar to the body of the element to form a mounting tab, the structure enabling a first and second sheathing element disposed with their sides overlapping and their corresponding folded edge portions engaged, the first folded edge of the lowermost tile being located within the channel of the first folded edge of the uppermost element and the mounting tab free part of the second folded edge of the uppermost element being located within the channel of the lowermost element and a first folded edge portion of a third tile to be engaged over and about the second folded edge portion of at least one of the first and second tiles.
10. 7. An exterior sheathing element as claimed in any one of the preceding claims coated with stone chips and configured to replicate a plurality of wooden shingles disposed in a typical, in situ, side by side overlapping relationship.
15. 8. An exterior sheathing element as claimed in any one of the preceding claims manufactured from substantially 0.27 gauge sheet metal.
20. 9. An exterior sheathing element as claimed in any one of the claims 1 to 7 inclusive wherein the mounting tab extends for substantially the full width of a tile and includes a laterally extending batten forming channel

10. An exterior sheathed structure comprising a plurality of sheathing elements as claimed in any one of the preceding claims and mounted to the structure as described within claim 6 by fixing means in association with the mounting tabs and wherein a support therefor extends adjacently therebeneath for substantially the complete span of the sheathing.

5 11. A method of exterior sheathing a structure with a plurality of sheathing elements as claimed in any one of claims 1-7 inclusive, comprising substantially of repeating the steps of positioning a first sheathing element on a sheathing element support of the structure, positioning a second sheathing element with a side thereof in an overlap relationship with a side of the first element and in so doing ensuring their corresponding folded edge portions engaged

10 one within the other, and positioning a first folded edge portion of a third sheathing element in engagement over and about the second folded edge portions of the first and second sheathing elements as to extend over the overlap join therebetween, and throughout utilising mounting means with the mounting tabs to affix the sheathing elements to the support.

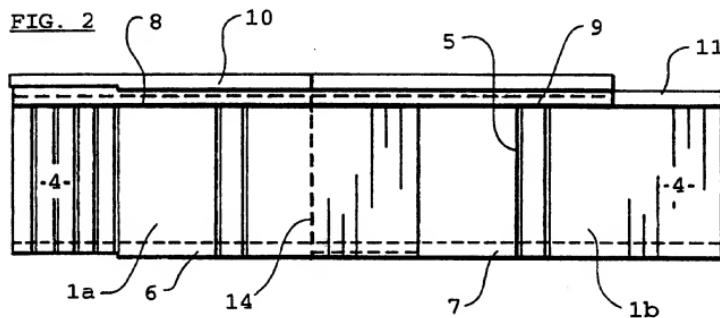
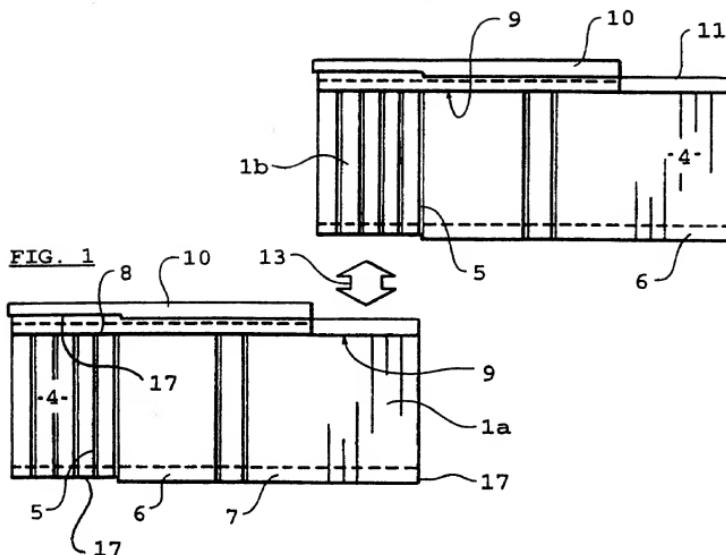
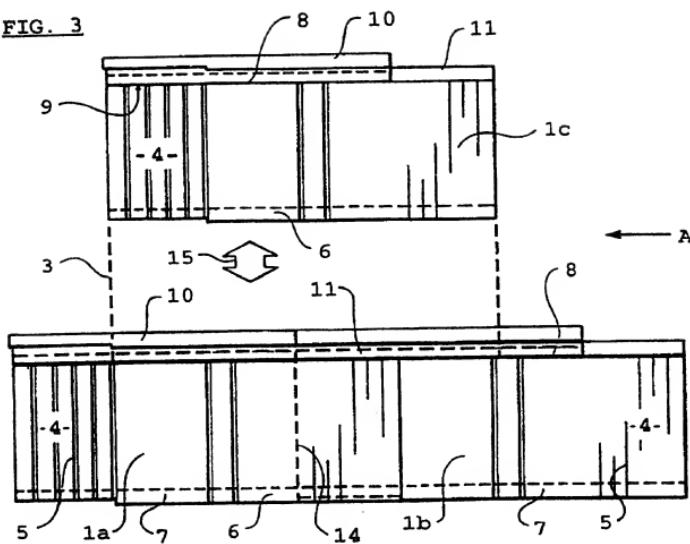
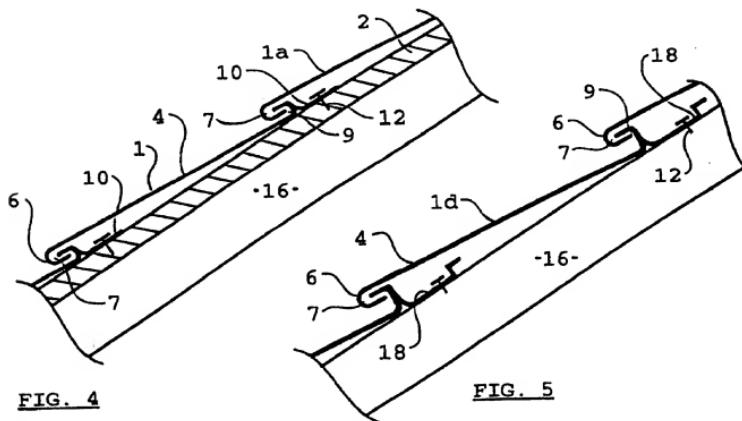
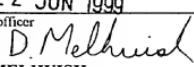


FIG. 3FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ 99/00018

A. CLASSIFICATION OF SUBJECT MATTER		
Int Cl ⁶ : E04D 3/362		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) E04D 1/- 3/-		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) DERWENT		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 5657603 A (GOODHART et al.) 19 August 1997 column 6 line 46 - column 8 line 46	1,3,7,8,10,11 2,9
X Y	US 5074093 A (MEADOWS) 24 December 1991 column 2 line 4 - column 3 line 16	1,3,7-11 2
Y	US 5305570 A (RODRIGUEZ et al.) 26 April 1994 column 5 lines 33-35	2
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C		<input checked="" type="checkbox"/> See patent family annex
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>		
Date of the actual completion of the international search 16 June 1999		Date of mailing of the international search report 22 JUN 1999
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6283 3929		Authorized officer  DAVID MELHUISH Telephone No.: (02) 6283 2426

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ 99/00018

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4266385 A (OEHLERT) 12 May 1981 column 5 lines 3-29	9

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/NZ 99/00018

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Member
US 5657603	CA 2146676
US 5074093	US 4930282
US 5305570	AU 51057/93
US 4266385	WO 94/09223

END OF ANNEX

PCT/ENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

ROSS NEWNHAM
PO Box 3206
AUCKLAND 1001
NEW ZEALAND

PCT

WRITTEN OPINION

(PCT Rule 66)

		Date of mailing (day/month/year) 31 AUG 1999
Applicant's or agent's file reference E787WO		REPLY DUE within TWO MONTHS from the above date of mailing
International application No. PCT/NZ 99/00018	International filing date (day/month/year) 9 February 1999	Priority Date (day/month/year) 13 February 1998
International Patent Classification (IPC) or both national classification and IPC Int. Cl. E04D 3/32		
Applicant METRO SHINGLES (INTL) LIMITED		

1. This written opinion is the **first** (first, etc) drawn by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: **13 June 2000**

Name and mailing address of the IPEA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200
WODEN ACT 2606
AUSTRALIA
Facsimile No. (02) 6285 3929

Authorized Officer
D Melhuish
DAVID MELHUISH
Telephone No. (02) 6283 2426

Basis of the opinion

1. With regard to the elements of the international application:*

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing.

- contained in the international application in printed form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

the description, pages
 the claims, Nos.
 the drawings, sheets/fig.

5. This opinion has been established as if (some, of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"

V. **Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims 2, 4-6, 9	YES
	Claims 1, 3, 7, 8, 10, 11	NO
Inventive step (IS)	Claims 4-6	YES
	Claims 1-3, 7-11	NO
Industrial applicability (IA)	Claims 1 to 11	YES
	Claims	NO

2. Citations and explanations

NOVELTY (N) Claims 1, 3, 7, 8, 10, 11

D1 - US 5657603

D2 - US 5074093

D3 - US 5305570

D4 - US 4266385

D1 discloses the features of claims 1, 3, 7, 8, 10 and 11. Figure 7 of D1 shows the profile of a sheathing element, which has a first edge portion 70 forming a channel, a second edge portion 78 forming a channel and a mounting tab 79. The sides of two adjacent sheathing elements are overlapped with their corresponding channels engaged, as shown in figures 10 and 14, and a first edge portion of a third sheathing element is engaged with the second folded edge of the first and second sheathing elements as shown in figures 12 and 13. The mounting tab is formed by the second channel having a return fold.

D2 is not considered relevant for novelty purposes as the channel 12 (figure 1) formed by the second folded edge does not "engage" with the corresponding channel of an adjacent sheathing element.

INVENTIVE STEP (IS) Claims 1-3, 7-11

Claims 1, 3, 7, 8, 10, 11: as above

Claims 2 and 9: The weathering indentations defined by claim 2 are considered to be well known in the art of roofing elements. D3 for example shows such a feature at column 5 lines 33-35. The addition of this feature to D1 is not considered to involve an inventive step. The batten forming channel of claim 9 is disclosed by D2 (item 5 in figure 1) and D4 (column 5 lines 3-29). The combination of either of these documents with D1, as would be obvious to a person skilled in the art, discloses all the features of claim 9.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

- 1. Claim 9 lacks clarity because it conflicts with previous claims such as 4 and 6 which define that the sheathing element has a "mounting tab free part" (eg claim 4 line 6).
- 2. Claim 10 lacks clarity because it is not clear what "the structure as defined in claim 6" (line 2) is. The "structure" in claim 6 at line 10 refers to the structure of the sheathing element, yet "structure" in claim 10 seems to be referring to the underlying roof structure.

INTERNATIONAL COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

01 NOV 1999

To:

MR RS NEWNHAM
NEWNHAM & CO
PO Box 3206
AUCKLAND 1001
NEW ZEALAND

PCT

WRITTEN OPINION

(PCT Rule 66)

		Date of mailing (day/month/year)	25 OCT 1999
Applicant's or agent's file reference E787WO		REPLY DUE	within ONE MONTH from the above date of mailing
International application No. PCT/NZ 99/00018	International filing date (day/month/year) 9 February 1999	Priority Date (day/month/year) 13 February 1998	
International Patent Classification (IPC) or both national classification and IPC Int. Cl.⁶ E04D 3/362			
Applicant METRO SHINGLES (INTL) LIMITED			

1. This written opinion is the **second** (first, etc) drawn by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items..

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

3. The applicant is hereby invited to **reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3.
For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: **13 June 2000**

Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No. (02) 6285 3929	Authorized Officer <i>D. Melhuish</i> DAVID MELHUISH Telephone No. (02) 6283 2426
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VIII. Certain observations on the international application

following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. Claims 4 and 8 lack clarity due to inconsistent terminology. It would be clearer if "groove" at page 8 lines 15, 17 and 20 and page 9 lines 9, 11 and 15 were replaced by "channel".
2. Claim 9 lacks clarity as there is no antecedent for "the tab free side section" (line 3) in claim 4.

I. Basis of the opinion

1. With regard to the elements of the international application:*

the international application as originally filed.

the description, pages , as originally filed,
 pages , filed with the demand,
 pages 1 - 6 , filed with the letter of 30 September 1999.

the claims, pages , as originally filed,
 pages , as amended under Article 19,
 pages , filed with the demand,
 pages 7 - 9 , filed with the letter of 30 September 1999.

the drawings, pages 1/2 - 2/2 , as originally filed,
 pages , filed with the demand,
 pages , filed with the letter of .

the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , filed with the letter of .

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

the language of publication of the international application (under Rule 48.3(b)).

the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

contained in the international application in printed form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

the description, pages

the claims, Nos.

the drawings, sheets/fig.

5. This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".

V. **Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims 1 - 9	YES
	Claims	NO
Inventive step (IS)	Claims 1 - 3, 5 - 7, 9	YES
	Claims 4, 8	NO
Industrial applicability (IA)	Claims 1 - 9	YES
	Claims	NO

2. Citations and explanations**INVENTIVE STEP (IS) Claims 4 and 8:**

D1 - US 5657603 A

D2 - US 5305570 A

D1 discloses all the features of claims 4 and 8 except for side portions of the sheathing elements overlapping without engagement. The sides of the sheathing elements of D1 interlock to improve weatherproofing of the elements. Another well known way this can be achieved is through the use of weathering ribs and indentations in the surface of the element, such as shown in D2 at either end of figure 5. I consider that it would be obvious to a person skilled in the art that the folded edges of D1 are very labour-intensive and that the use of a different method of weatherproofing would be greatly labour-saving. It is therefore considered non-inventive to replace the folded tabs of D1 with standard weathering ribs. With such a change, the sides of the sheathing elements would overlap without engagement and thus define all the features of claims 4 and 8. Therefore claims 4 and 8 do not involve an inventive step.

VIII. Certain observations on the international application

following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. Claims 4 and 8 lack clarity due to inconsistent terminology. It would be clearer if "groove" at page 8 lines 15, 17 and 20 and page 9 lines 9, 11 and 15 were replaced by "channel".
2. Claim 9 lacks clarity as there is no antecedent for "the tab free side section" (line 3) in claim 4.

TENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

REC'D 09 FEB 2000

PCT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference E787WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. PCT/NZ 99/00018	International filing date (day/month/year) 9 February 1999	Priority Date (day/month/year) 13 February 1998
International Patent Classification (IPC) or national classification and IPC Int. Cl.⁶ E04D 3/362		
Applicant METRO SHINGLES (INTL) LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
These annexes consist of a total of 9 sheet(s).
3. This report contains indications relating to the following items:
I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input checked="" type="checkbox"/> Certain observations on the international application

Date of submission of the demand 12 August 1999	Date of completion of the report 24 January 2000
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  DAVID MELHUISH Telephone No. (02) 6283 2426

I. Basis of the report**1. With regard to the elements of the international application:***

the international application as originally filed.

the description, pages , as originally filed,
 pages , filed with the demand,
 pages 1 to 6, filed with the letter of 30 September 1999.

the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages 7 to 9, filed with the letter of 30 September 1999.

the drawings, pages 1/2 to 2/2, as originally filed,
 pages , filed with the demand,
 pages , filed with the letter of .

the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , filed with the letter of .

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

the language of publication of the international application (under Rule 48.3(b)).

the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. The amendments have resulted in the cancellation of:

the description, pages

the claims, Nos.

the drawings, sheets/fig.

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)) **

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1 to 9	YES
	Claims	NO
Inventive step (IS)	Claims 1 to 3, 5 to 7, 9	YES
	Claims 4, 8	NO
Industrial applicability (IA)	Claims 1 to 9	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

INVENTIVE STEP (IS) Claims 4 and 8:

D1 - US 5657603 A

D2 - US 5305570 A

D1 discloses all the features of claims 4 and 8 except for side portions of the sheathing elements overlapping without engagement. The sides of the sheathing elements of D1 interlock to improve weatherproofing of the elements. Another well known way this can be achieved is through the use of weathering ribs and indentations in the surface of the element, such as shown in D2 at either end of figure 5. I consider that it would be obvious to a person skilled in the art that the folded edges of D1 are very labour-intensive and that the use of a different method of weatherproofing would be greatly labour-saving. It is therefore considered non-inventive to replace the folded tabs of D1 with standard weathering ribs. With such a change, the sides of the sheathing elements would overlap without engagement and thus define all the features of claims 4 and 8. Therefore claims 4 and 8 do not involve an inventive step.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. Claims 4 and 8 lack clarity due to inconsistent terminology. It would be clearer if "groove" at page 8 lines 15, 17 and 20 and page 9 lines 9, 11 and 15 were replaced by "channel".
2. Claim 9 lacks clarity as there is no antecedent for "the tab free side section" (line 3) in claim 4.